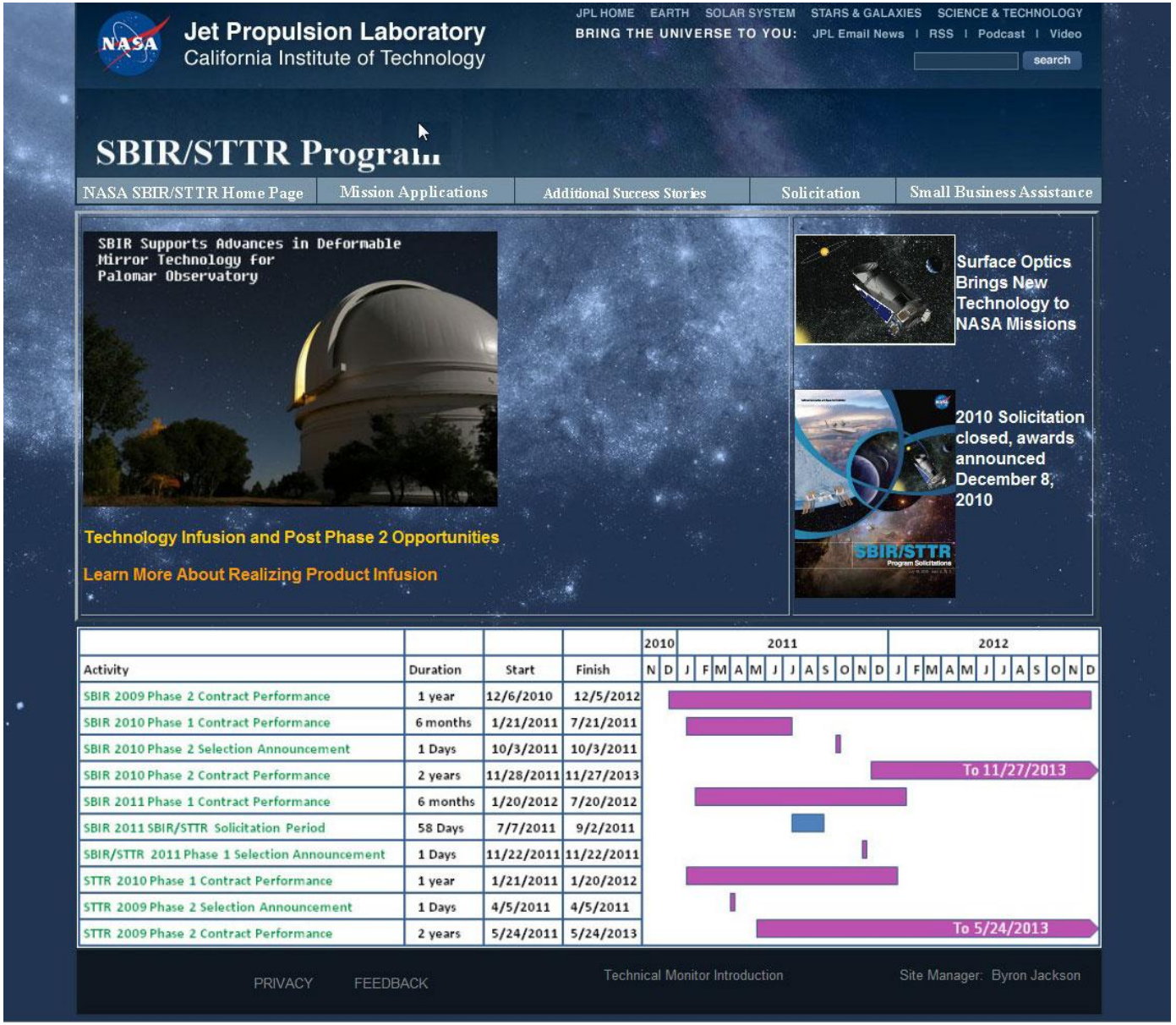
Small Business Innovation Research
Small Business Technology Transfer

Byron Jackson

SBIR Program Office
NASA Jet Propulsion Laboratory

March 1, 2011

http://sbir.jpl.nasa.gov



Agenda

- Federal SBIR/STTR Program - What is it
- Information on 11 agency programs and contacts
- NASA SBIR Program Description
- Creating a Winning Proposal
- Technologies for the 2011 NASA Solicitation
- Proposal Submission
- Discussions with Individual Companies

SBIR/STTR Program Basics

- **Congressionally mandated programs**
- **Programs open door to small business participation in Federal research and development programs**
- **11 Federal agencies involved**
- **Programs enjoy strong Congressional support**

SBIR/STTR Program Funding

PL 106-554

- Federal agencies with an extramural R&D budget of over **$100M (SBIR) or $1B (STTR)** must participate in the SBIR and STTR Programs, respectively

- Participating SBIR agencies must reserve **2.5%** of their extramural R&D budget for SBIR and **0.3%** for STTR

- **Extramural budget** is agency R&D (including FFRDCs and contractor operated facilities) less funds for government owned and operated facilities

11 Agencies Involved

Department of Defense (DOD) (Air Force, Army, Navy, MDA, etc.)	SBIR/STTR
Department of Health & Human Services (HHS/NIH)	SBIR/STTR
National Aeronautics & Space Admin (NASA)	SBIR/STTR
Department of Energy (DOE)	SBIR/STTR
National Science Foundation (NSF)	SBIR/STTR
Department of Homeland Security (DHS)	SBIR
Department of Agriculture (USDA)	SBIR
Department of Commerce (DOC) (NOAA, NIST)	SBIR
Environmental Protection Agency (EPA)	SBIR
Department of Transportation (DOT)	SBIR
Department of Education (ED)	SBIR

Three Phase Programs*

	SBIR	STTR
Phase I	6 months	6-12 months
Project Feasibility	up to $100K	up to $100K
Phase II		
Research & Development	2 yrs up to $750K	2 years up to $750K
Phase III		
Commercialization	non-SBIR/non-STTR funds	

* Duration and funding limits are variable by agency. The Small Business Administration is considering raising funding limits to $150K and $1,000K for Phase I and Phase II, respectively.

SBIR – Eligibility Checkpoints

- Organized for-profit U.S. small business (500 or fewer employees)
- At least 51% U.S. owned and independently operated
- Small business located in the U.S.
- P.I.'s primary employment must be with small business during the project
- For Phase I, no more than 1/3 of funding less profit can be subcontracted, 1/2 for Phase II

STTR – Eligibility Checkpoints

- **Small business must perform a minimum of 40% of the work; research institution a minimum of 30%**
- **Research institution is a FFRDC, college or university, or non-profit research institution**
- **No size limit on research institution**
- **Small business must manage and control the STTR funding agreement**
- **Principal Investigator may be at the small business or research institution**

Agency Programs Are Different















SBIR/STTR Solicitation Upcoming Dates

Agency	Release Dates	Accepts Dates	Closing Dates
DoD 2011.2	Apr 26, 2011	May 26, 2011	Jun 29, 2011
DoD 2011.3	Jul 28, 2011	Aug 29, 2011	Sep 28, 2011
DoD 2011.1	Nov 9, 2011	Dec 12, 2011	Jan 11, 2012
DoD STTR	Jul 28, 2011	Aug 29, 2011	Sep 28, 2011
NASA	Jul 7, 2011	Jul 7, 2011	Sep 1, 2011
EPA	Mar 15, 2011	Mar 15, 2011	May 3, 2011
DOT	Apr 4, 2011	Apr 4, 2011	Jun 13, 2011

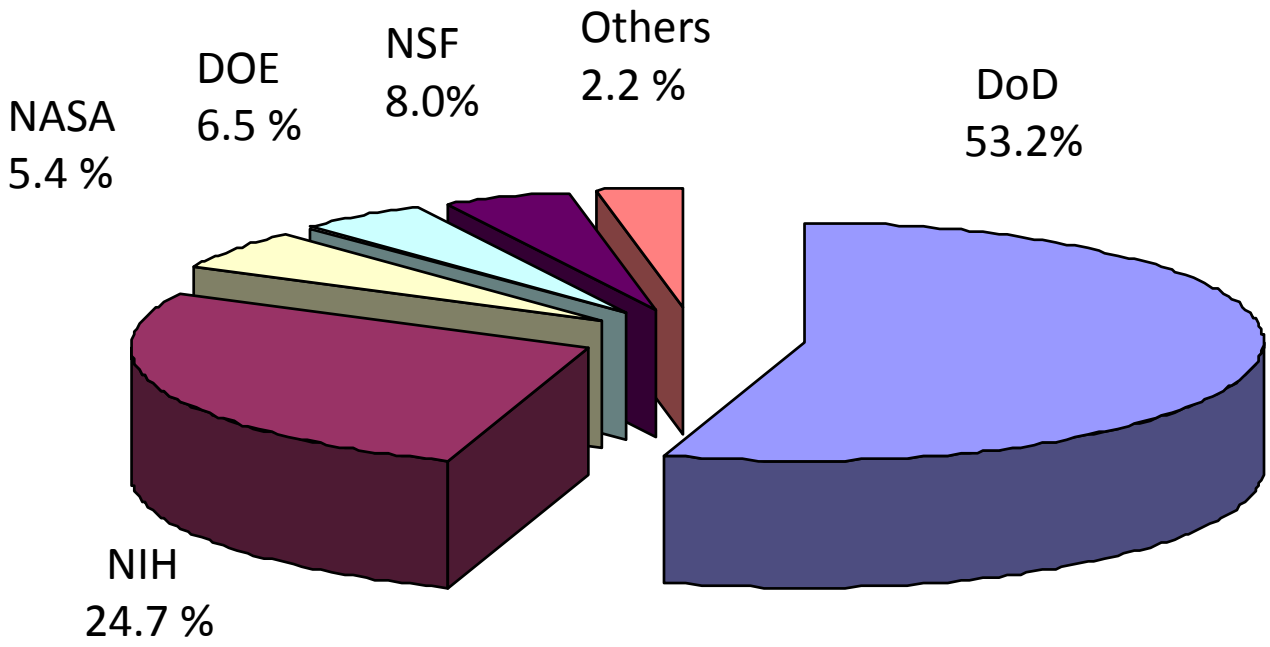
Source for SBIR/STTR solicitation dates - http://www.zyn.com/sbir/scomp.htm

Contracts or Grants

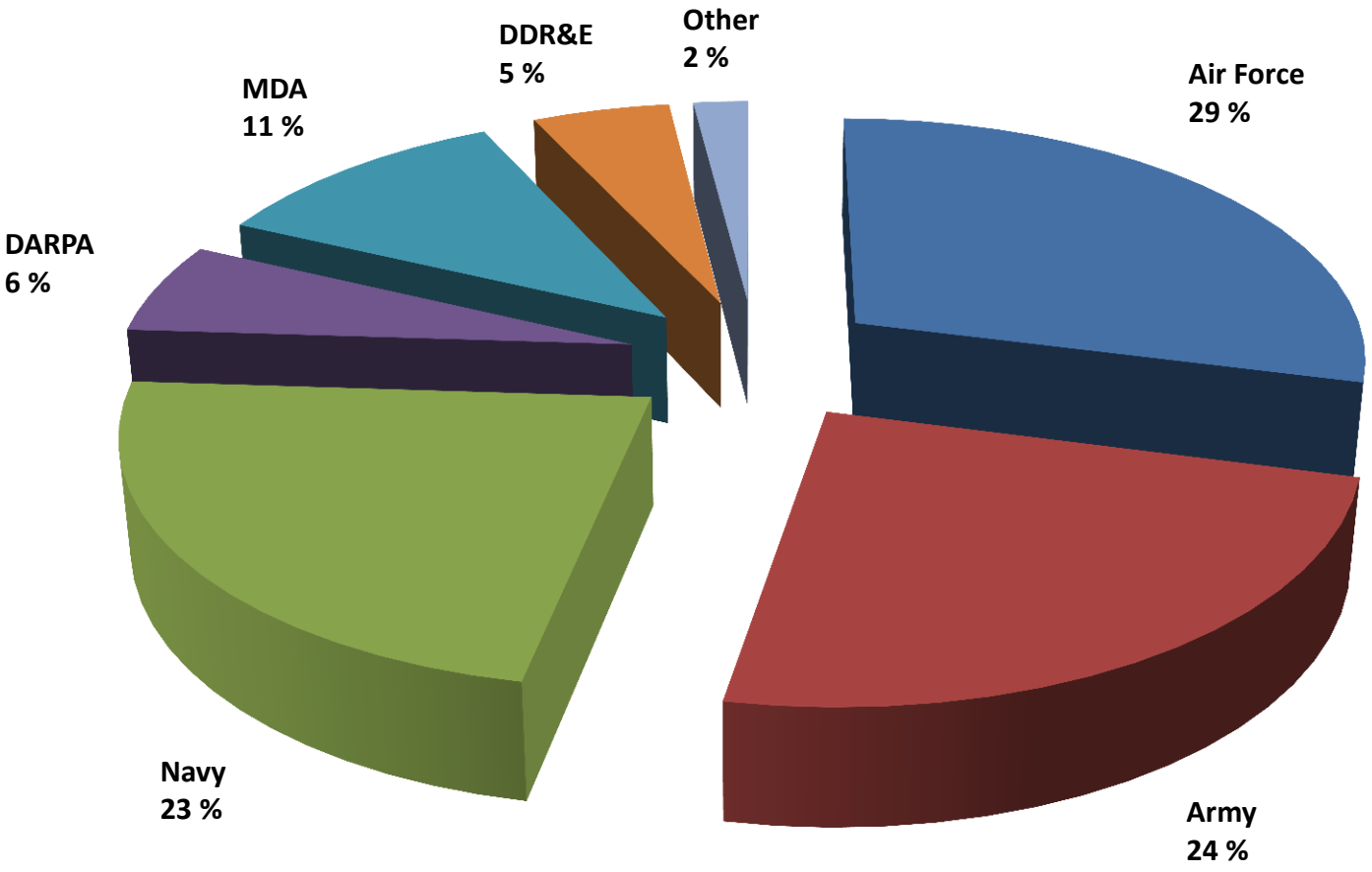
Contracting Agencies	
DoD	$1,361M
HHS/NIH	$631M
NASA	$138M
EPA	$7M
DOT	$6M
ED	$7M
DOC	$3M
DHS	$10M

Granting Agencies	
NSF	$205M
USDA	$22M
DOE	$167M
HHS/NIH	
ED	

SBIR/STTR Agency Funding 2010 $2.56 Billion



DoD SBIR Program



Agency Differences Exist

ALWAYS CHECK WITH THE AGENCY

Agency	**DoD**	**NASA**	**DOT**	**EPA**	**DOE**	**DHS**	**DOC NOAA/ NIST**	**NSF**	**USDA**	**DOED**	**NIH**
Award Type *Contract or Grant*	C	C	C	C	G	C	C	G	G	G/C	G/C
Award Amount Phase I	80K-100K[a] Options[c]	100K	100K	80K	100K 9 mos	100K	90/ 95K	150K	100K	100K	150K[b]
Award Amount Phase II	500K-1,000K	600K	750K	300K	750K	750K	300/ 400K	500K[C]	500K	750K	1,000K[b]
Review Process	I	I	I	E	E	I	I	E	E	I	E
Research Topics	S	S	S	S	S	S	S	B	B	S	B
Gap Funding	Y	N	N	N	Y	N	N	Y	Y	N	Y
Communications	R	R	R	R	R	R	R	O	O	O	O

C - Contract
I – Internal Review
S – Specific
R – Restricted

G – Grant
E – External Review
B – Broad
O – Open

[a] Varies among DoD subcomponents
[b] Deviations permitted with justification
[c] Some agencies offer Phase II options
Information Updated 2/15/11

SBIR Points of Contact

DoD -Christopher S. Rinaldi (866) 724-7457

Air Force - Gus Vu (937) 656-9015

Navy - John Williams (703) 696-0342

Army - John Smith (703) 806-2085

DARPA - Susan Nichols (571) 218-4922

Missile Defense Agency - Doug Deason (256) 955-2020

DHS - Elisa (Lisa) Sobolewski (202) 254-6966

DOT - Leisa Moniz (617) 494-2051

SBIR Points of Contact

DOE - Dr. Manny Oliver (301) 903-0309

NSF - Rosemarie Wessen (703) 292-7070

EPA - Dr. James Gallup (202) 343-9703

USDA - Charles F. Cleveland (202) 401-4002

NOAA - Kelly K. Wright (301) 713-3565

NIST - Cathy Cohn (301) 975-6691

ED - Edward Metz (202) 208-1983

NASA - Carl Ray (202) 358-4652

SBIR Points of Contact

NSF SBIR Program Managers:

Cheryl Albus (703) 292-7051
Thomas Allnutt (703) 292-5332
Ali Andalibi (703) 292-7795
Errol Arkilic (703) 292-8095
Ian Bennett (703) 292-8655
Deepak Bhat (703) 292-8538
Rathindra DasGupta (703) 292-8353
Juan Figueroa (703) 292-7054
William Haines (703) 292-7079

NASA SBIR/STTR 2010 Budget

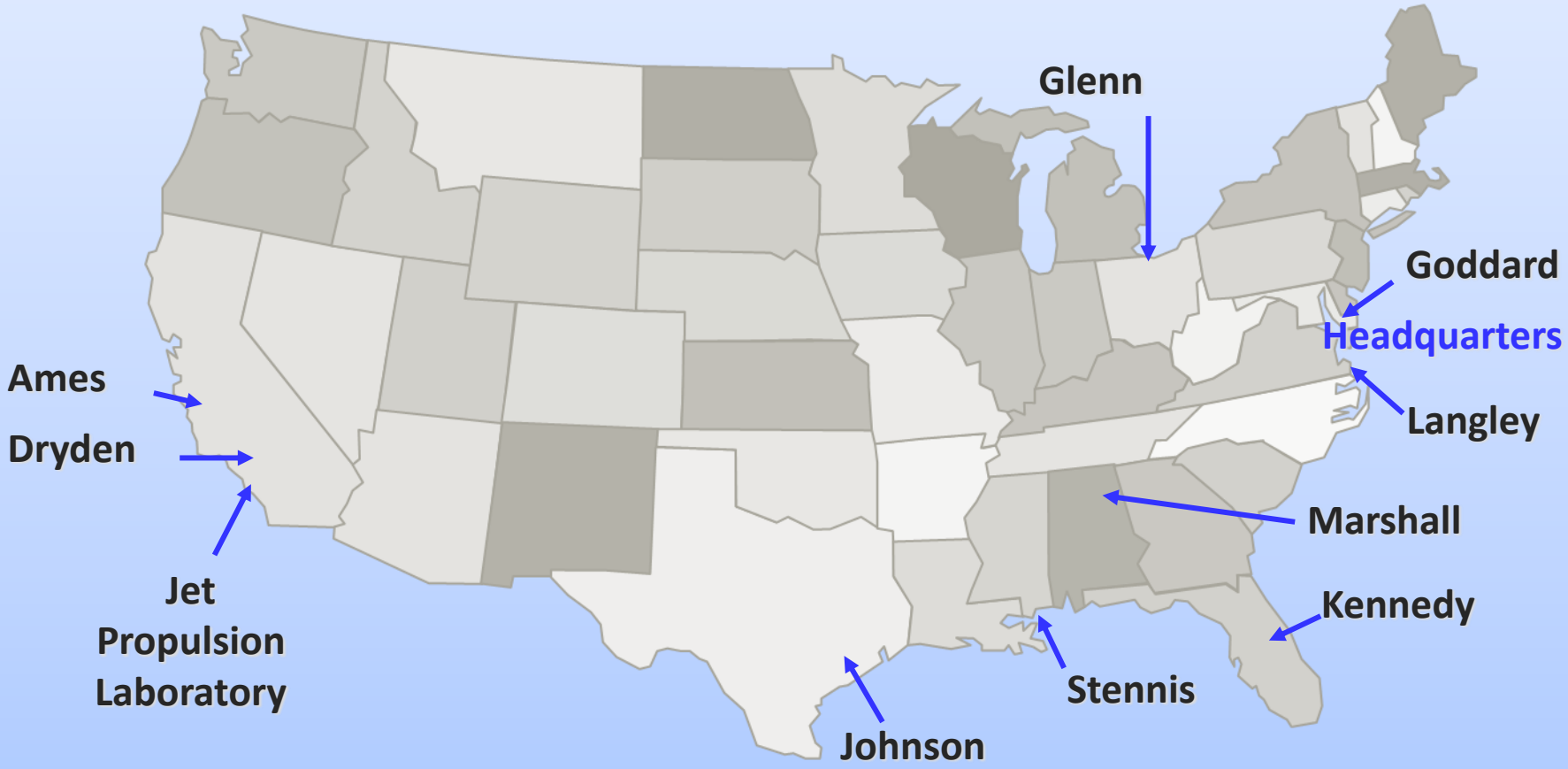
SBIR $124M*
STTR $14.1M*

SBIR - Phase I Contracts: $100K (6 months)
STTR - Phase I Contracts: $100K (12 months)
SBIR/STTR - Phase II Contracts: $600K (2 years)

* Estimates

NASA SBIR 2011Process Scenario

NASA Participating Centers



Innovative Partnerships Program Elements

SBIR
&
STTR

IPP Seed Fund

Centennial Challenges

New Business Models

Innovation Transfusion

Intellectual Property Management

Technology Transfer

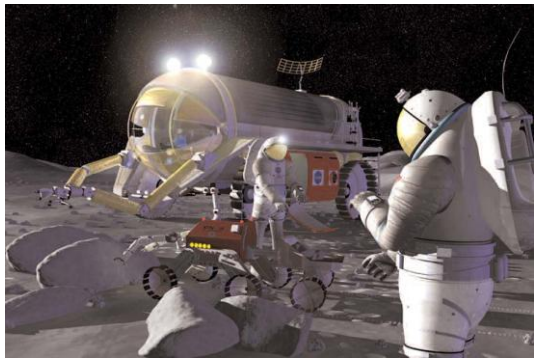
New Innovative Partnerships

http://www.nasa.gov/offices/ipp/home/index.html

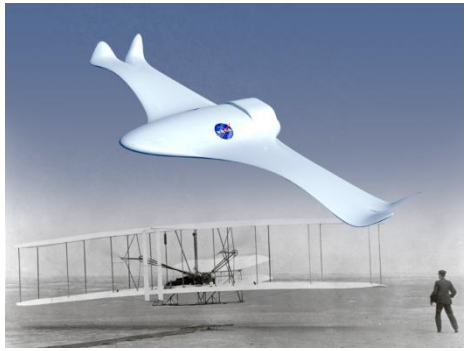
Mission Driven

Partnership with Mission Directorates Drives SBIR/STTR Investment

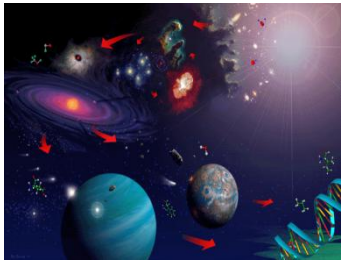
Exploration Systems



Aeronautics Research



Science

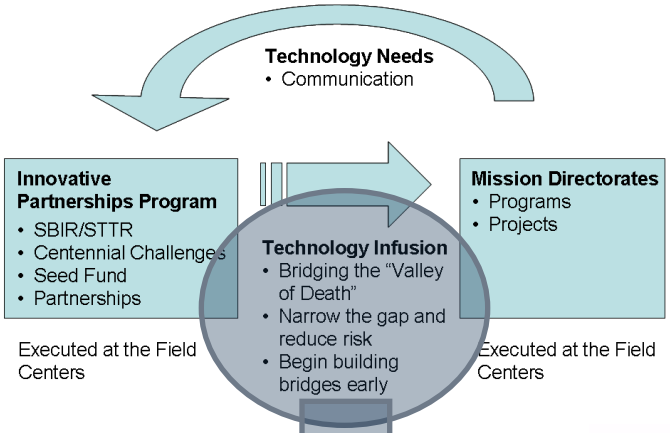


Space Operations

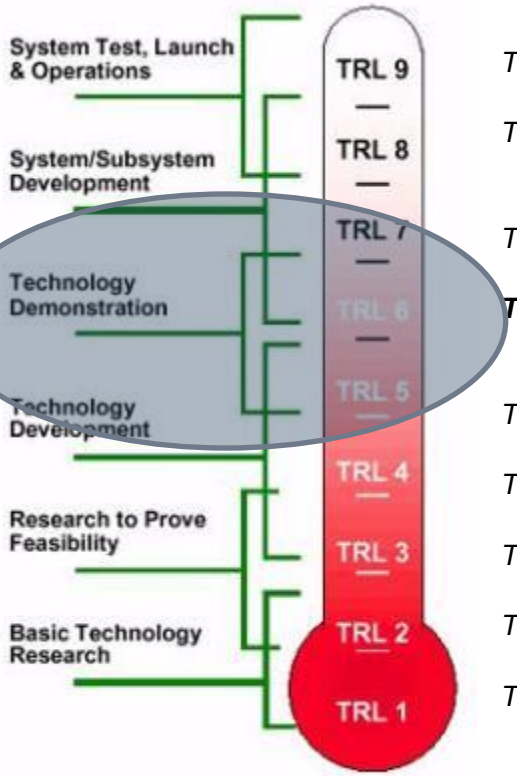
Inherent Challenges of Space Systems

- **Surviving Launch Conditions: high g-load, vibration, payload fairing, deployment**
- **Functioning in Extreme Environments: radiation, temperature, gravity, vacuum**
- **Limiting Power Availability**
- **High Degree of Autonomy and Reliability**
- **Long Range Communication and Navigation**

Technology Demonstration is critical to Infusion



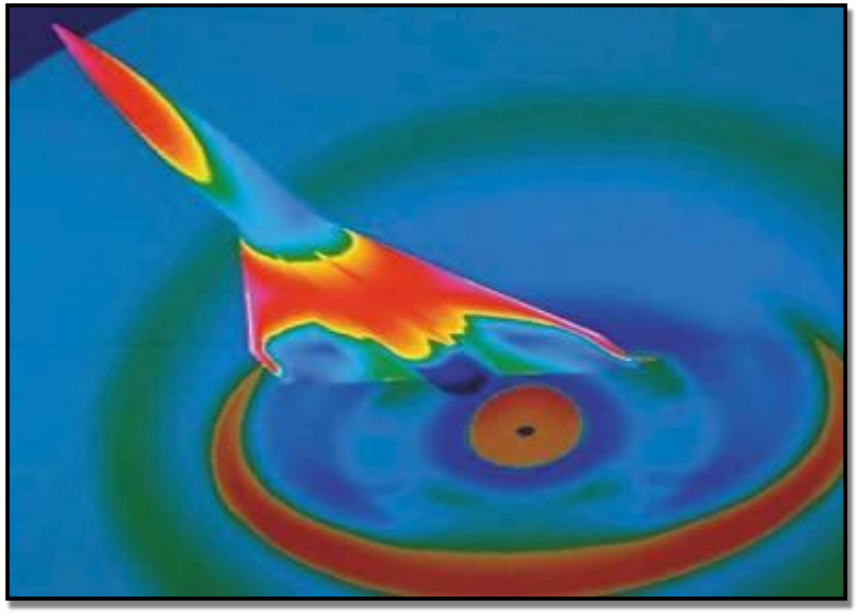
- **As a rule of thumb, projects like technology to be at Technology Readiness Level (TRL) 6 by PDR**
- **Technology Demonstration in relevant environments is critical**



TRL 9	Actual system "flight proven" through successful mission operations.
TRL 8	Actual system completed and "flight qualified" through test and demonstration (ground or space).
TRL 7	System prototype demonstration in a ***space environment***.
TRL 6	System/subsystem model or prototype demonstration in a ***relevant environment*** (ground or space).
TRL 5	Component and/or breadboard validation in ***relevant environment***.
TRL 4	Component and/or breadboard validation in laboratory environment.
TRL 3	Analytical and experimental critical function and/or characteristic proof-of concept.
TRL 2	Technology concept and/or application formulated.
TRL 1	Basic principles observed and reported.

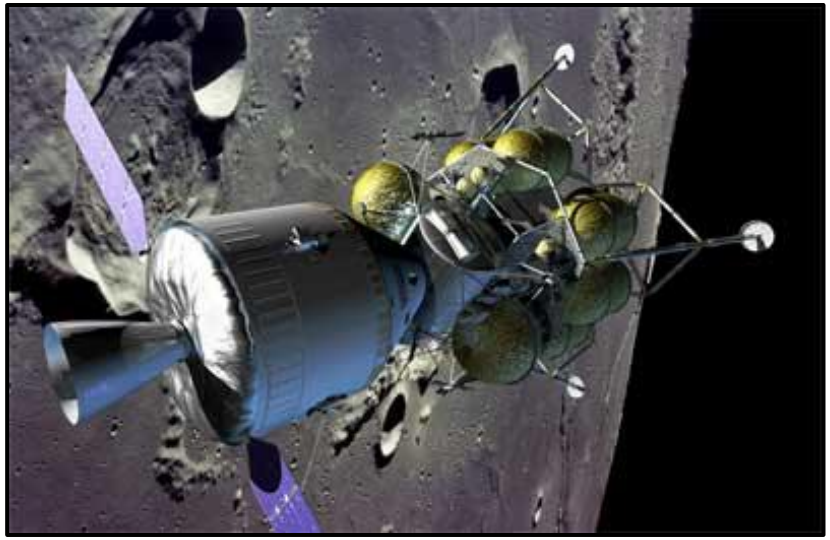
2010 Aeronautics Research Topics

- Aviation Safety
- Fundamental Aeronautics
- Airspace Systems
- Aeronautics Test Technologies
- Integrated System Research Project (ISRP)



2010 Exploration Systems Research Topics - 1

- In Situ Resource Utilization
- Advanced Propulsion
- Life Support and Habitation Systems
- Extra-Vehicular Activity Technology
- Lightweight Spacecraft Materials and Structures
- Autonomous Systems and Avionics
- Human-Robotic Systems
- High-Efficiency Space Power Systems

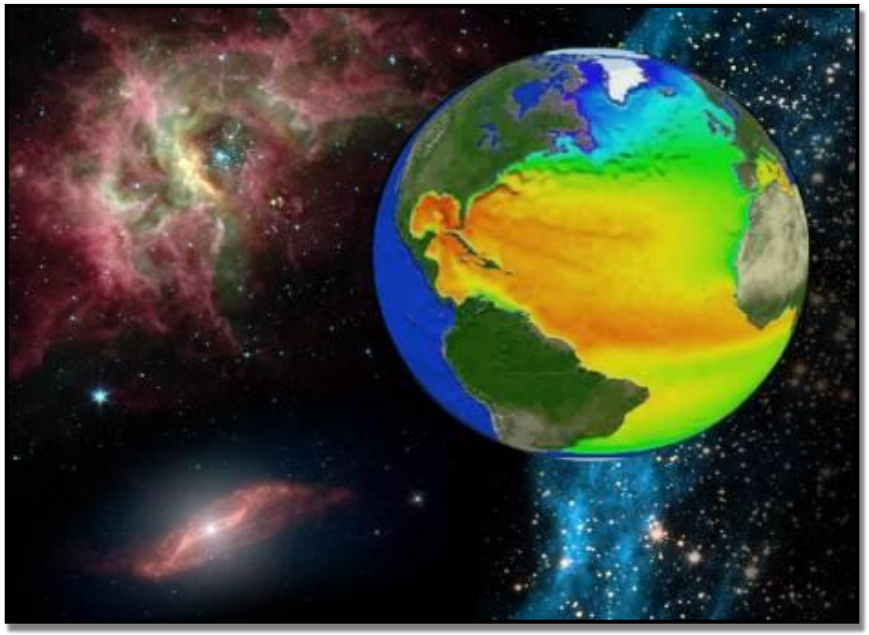


2010 Exploration Systems Research Topics - 2

- Entry, Descent, and Landing (EDL) Technology
- Cryogenic Propellant Storage and Transfer
- Exploration Crew Health Capabilities
- Exploration Medical Capability
- Behavioral Health and Performance
- Space Human Factors and Food Systems
- Space Radiation
- Inflight Biological Sample Preservation and Analysis

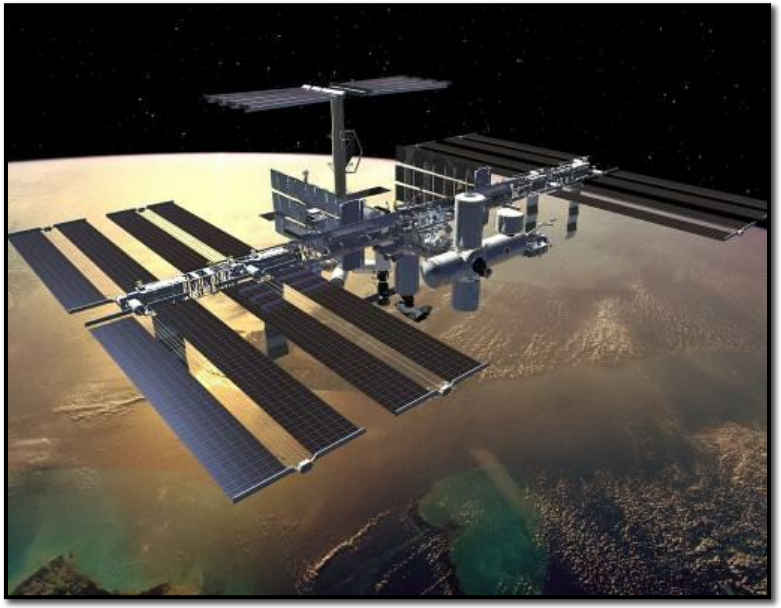
2010 Science Topics

- Sensors, Detectors, and Instruments
- Advanced Telescope Systems
- Spacecraft and Platform Subsystems
- Low-Cost Small Spacecraft and Technologies
- Robotic Exploration Technologies
- Information Technologies



2010 Space Operation Topics

- Space Communications
- Space Transportation
- Processing and Operations



2010 STTR Subtopics - 1

- Small Probe Entry Descent and Landing System, and Information Technologies for Intelligent Planetary Robotics
- Atmospheric Flight Research of Advanced Technologies and Vehicle Concepts
- Technologies for Space Exploration
- Advanced Terrestrial, Airborne, and Spaceborne Instruments
- Next Generation In Situ Compositional Mapping Tools

2009 STTR Subtopics - 2

- Innovative Technologies and Approaches for Space
- Wireless SAW Sensor Arrays
- Lidar, Radiosotope Generators, and Circuit Board Materials
- Technologies for Human and Robotic Space Exploration Propulsion Design and Manufacturing
- Rocket Propulsion/Energy Conservation

Nature of NASA SBIR & STTR Contracts

- **SBIR contracts are fixed price contracts to be completed on a best effort basis**
- **Company will own resulting intellectual property (data, copyrights, patents, etc.)**
- **Government has royalty-free rights for government use of intellectual property**
- **Government protects data from public dissemination for four years after contract ends**

Path to a Winning Proposal

- Review prior year solicitation: http://sbir.nasa.gov/
- Search and identify specific technical areas (subtopics) and lead center(s) of your interest
- Request subject matter expert contact information from respective field center program POCs
- E-mail/Call technical POCs and initiate dialogues
- Learn technology needs, priorities, and funding gaps
- Visit and brief NASA on your companies capabilities, if the opportunity presents itself

Some Important Facts to Remember

- All required items of information must be contained in your proposal – carefully follow directions
- Eligibility is determined at time of award
- The PI is not required to have a Ph.D.
- The PI is required to have expertise to oversee project scientifically and technically
- Applications may be submitted to different agencies for similar work
- Awards may not be accepted from different agencies for duplicative projects
- Do not plan on using Government facilities unless they are not available in the private sector

SBIR/STTR Center Points of Contact - 1

- Ames Research Center (ARC)
- Luis Mederos, 650-604-5268, Luis.Mederos@nasa.gov (SOMD)
- Kim Hines, 650-604-5582, Kimberly.K.Hines@nasa.gov

- Dryden Flight Research Center (DFRC)
- Ron Young, 661-276-3872, Ron.Young@nasa.gov

- Glenn Research Center (GRC)
- Gynelle Steele, 216-433-8258,Gynelle.C.Steele@nasa.gov (ARMD)
- Jim Stegeman, 216-433-3389,James.D.Stegeman@nasa.gov

- Goddard Space Flight Center (GSFC)
- Dr. Jim Chern, 301-286-5836, Jim.Chern@nasa.gov

- Jet Propulsion Laboratory (JPL)
- Indrani Graczyk, 818-354-2241, Indran..graczyk@jpl.nasa.gov (SMD)
- Carol Lewis, 818-354-3767, Carol.R.Lewis@jpl.nasa.gov
- Byron Jackson, 818-354-1246, Byron.L.Jackson@jpl.nasa.gov

- Johnson Space Center (JSC)
- Kathy Packard, 281-244-5378, Kathryn.B.Packard@nasa.gov

SBIR/STTR Center Points of Contact - 2

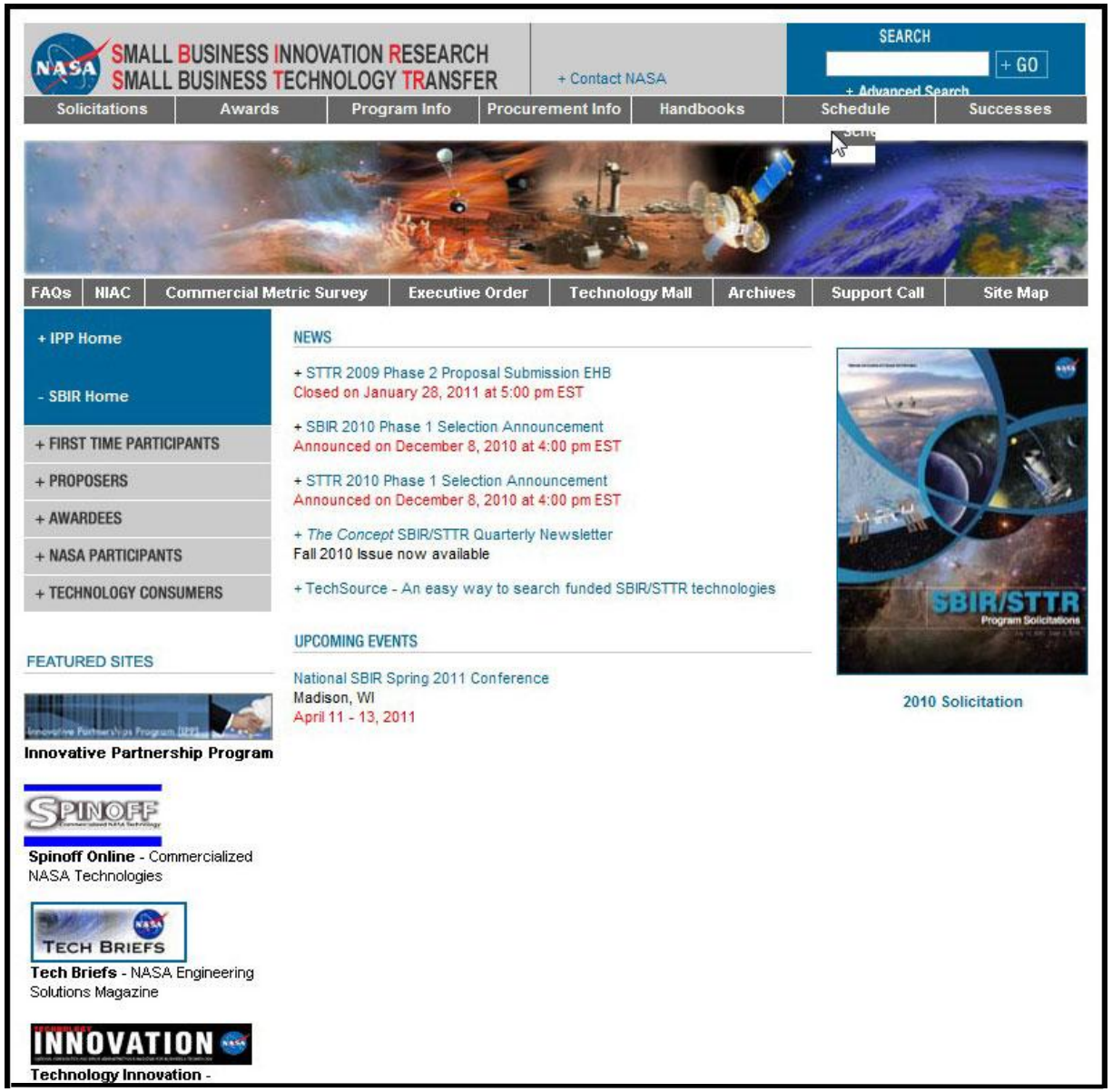
- Kennedy Space Center (KSC)
- Joni Richards, 321-867-2225, Joni.M.Richards@nasa.gov

- Langley Research Center (LaRC)
- Bob Yang, 757-864-8020, Robert.L.Yang@nasa.gov (ESMD)
- Kimberly Graupner, 757-864-8618, Kimberly.E.Graupner@nasa.gov

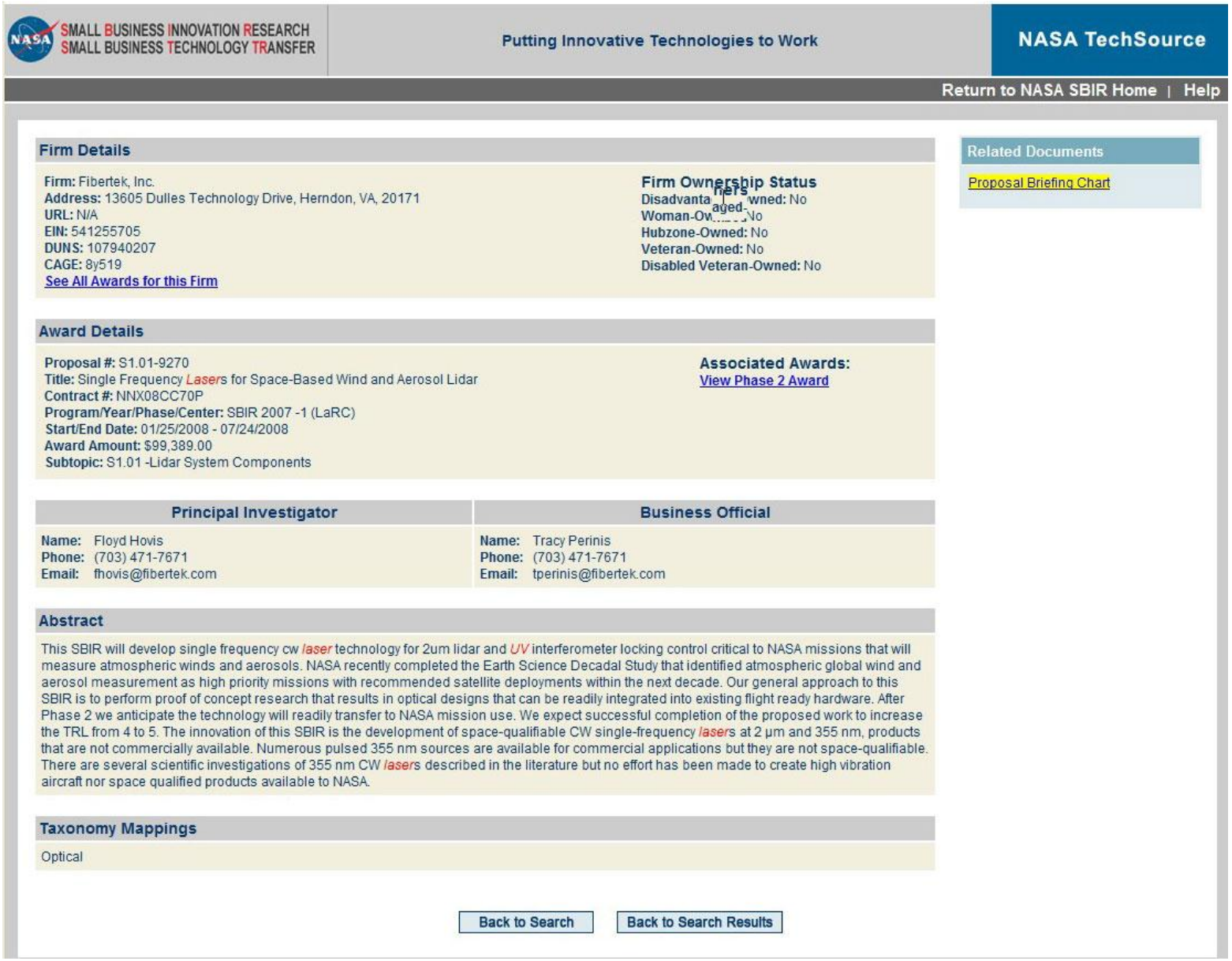
- Marshall Space Flight Center (MSFC)
- Lynn Garrison, 256-544-6719, Virginia.B.Garrison@nasa.gov

- Stennis Space Center (SSC)
- Ray Bryant, 228-688-3964, Ray.Bryant-1@nasa.gov

http://sbir.gsfc.nasa.gov



NASA TechSource



SMALL BUSINESS INNOVATION RESEARCH
SMALL BUSINESS TECHNOLOGY TRANSFER

Putting Innovative Technologies to Work

NASA TechSource

Return to NASA SBIR Home | Help

Firm Details

Firm: Fibertek, Inc.
Address: 13605 Dulles Technology Drive, Herndon, VA, 20171
URL: N/A
EIN: 541255705
DUNS: 107940207
CAGE: 8y519
See All Awards for this Firm

Firm Ownership Status
Disadvanta[illegible]wned: No
Woman-Ow[illegible]: No
Hubzone-Owned: No
Veteran-Owned: No
Disabled Veteran-Owned: No

Related Documents
Proposal Briefing Chart

Award Details

Proposal #: S1.01-9270
Title: Single Frequency *Laser*s for Space-Based Wind and Aerosol Lidar
Contract #: NNX08CC70P
Program/Year/Phase/Center: SBIR 2007 -1 (LaRC)
Start/End Date: 01/25/2008 - 07/24/2008
Award Amount: $99,389.00
Subtopic: S1.01 -Lidar System Components

Associated Awards:
View Phase 2 Award

Principal Investigator	Business Official
Name: Floyd Hovis	**Name:** Tracy Perinis
Phone: (703) 471-7671	**Phone:** (703) 471-7671
Email: fhovis@fibertek.com	**Email:** tperinis@fibertek.com

Abstract

This SBIR will develop single frequency cw *laser* technology for 2um lidar and *UV* interferometer locking control critical to NASA missions that will measure atmospheric winds and aerosols. NASA recently completed the Earth Science Decadal Study that identified atmospheric global wind and aerosol measurement as high priority missions with recommended satellite deployments within the next decade. Our general approach to this SBIR is to perform proof of concept research that results in optical designs that can be readily integrated into existing flight ready hardware. After Phase 2 we anticipate the technology will readily transfer to NASA mission use. We expect successful completion of the proposed work to increase the TRL from 4 to 5. The innovation of this SBIR is the development of space-qualifiable CW single-frequency *laser*s at 2 µm and 355 nm, products that are not commercially available. Numerous pulsed 355 nm sources are available for commercial applications but they are not space-qualifiable. There are several scientific investigations of 355 nm CW *laser*s described in the literature but no effort has been made to create high vibration aircraft nor space qualified products available to NASA.

Taxonomy Mappings

Optical

Back to Search | Back to Search Results

Infusion Visibility

- **SBIR/STTR Hallmarks of Success Videos**
  - 6th Volume in Production
  - ~ 10 infusion video vignettes per volume featuring transfer & mission integration successes
  - DVDs are available

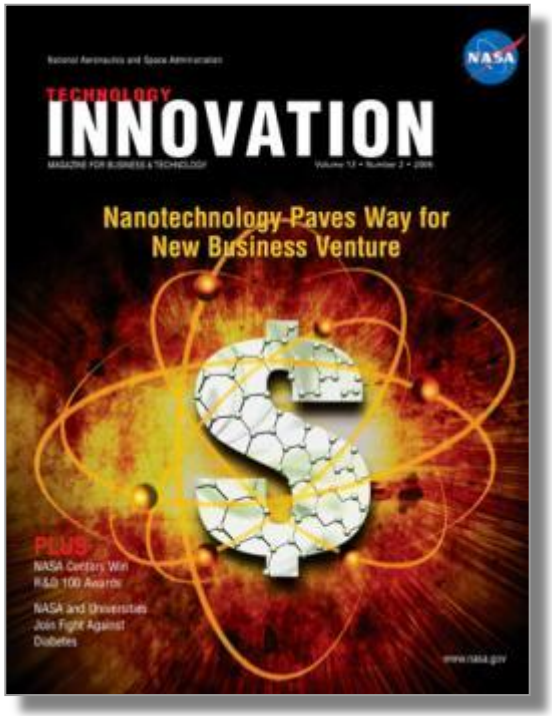
41

Outreach & Publications

http://www.techbriefs.com/

Electronics & Computers
Semiconductors & ICs
Mechanics
Information Sciences
Materials Software
Manufacturing & Prototyping
Machinery & Automation
Physical Sciences
Bio-Medical Test & Measurement

http://www.sti.nasa.gov/tto/
http://www.sti.nasa.gov/spinoff/searchrecord



http://ipp.nasa.gov/innovation/index.html

http://sbir.nasa.gov

Submission Process

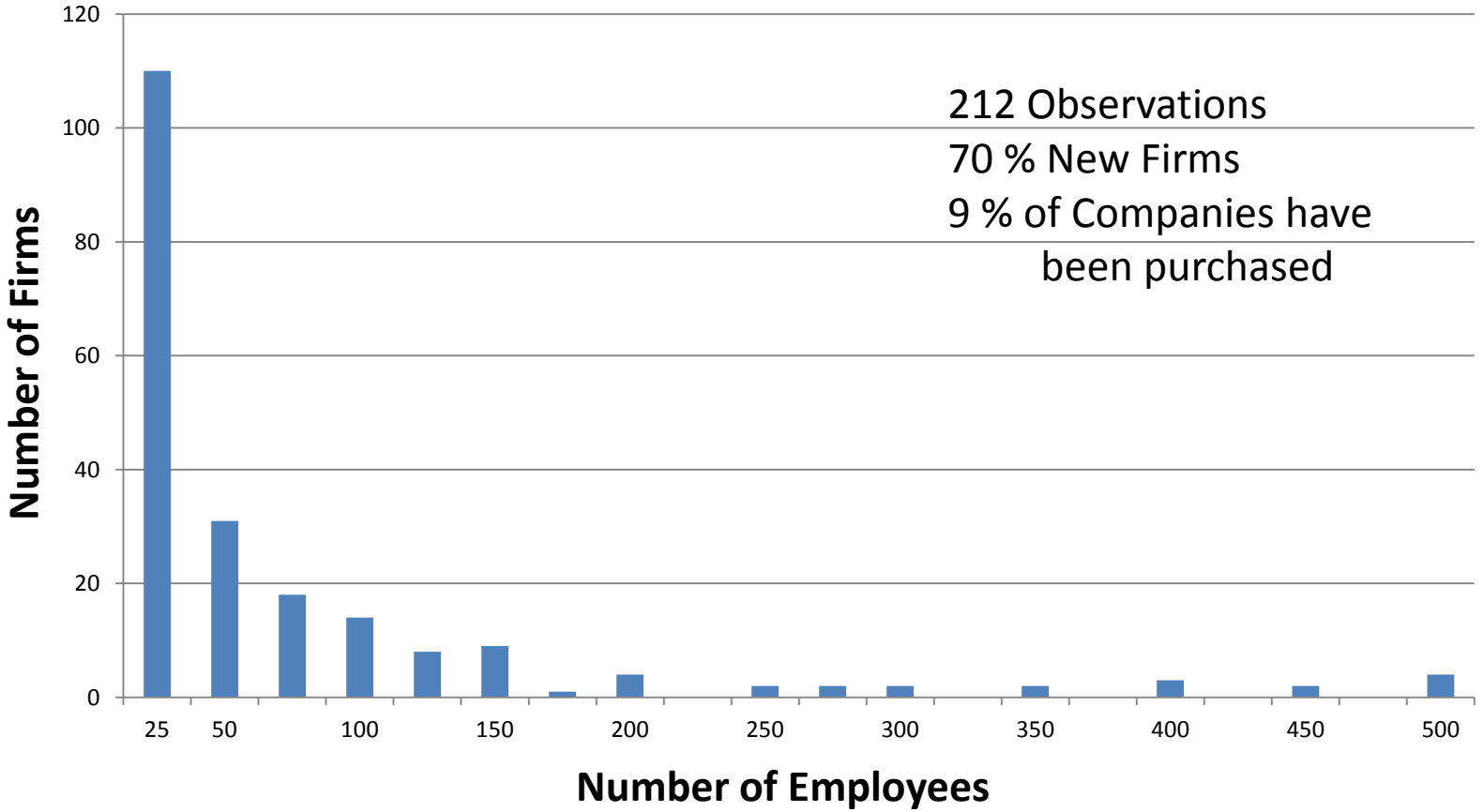
- All proposals are submitted electronically via the internet
- Make sure all parts of your proposal are received on time – late proposals are rejected
- Proposals are screened for administrative completeness and turned over to the managing NASA Center for technical review

Proposal Review & Selection Criteria

- **Proposal Review**
  - Factor 1: scientific/technical merit and feasibility (50%)
  - Factor 2: experience, qualifications and facilities (25%)
  - Factor 3: effectiveness of the proposed work plan (25%)
  - Factor 4: commercial merit and feasibility (adjectival)

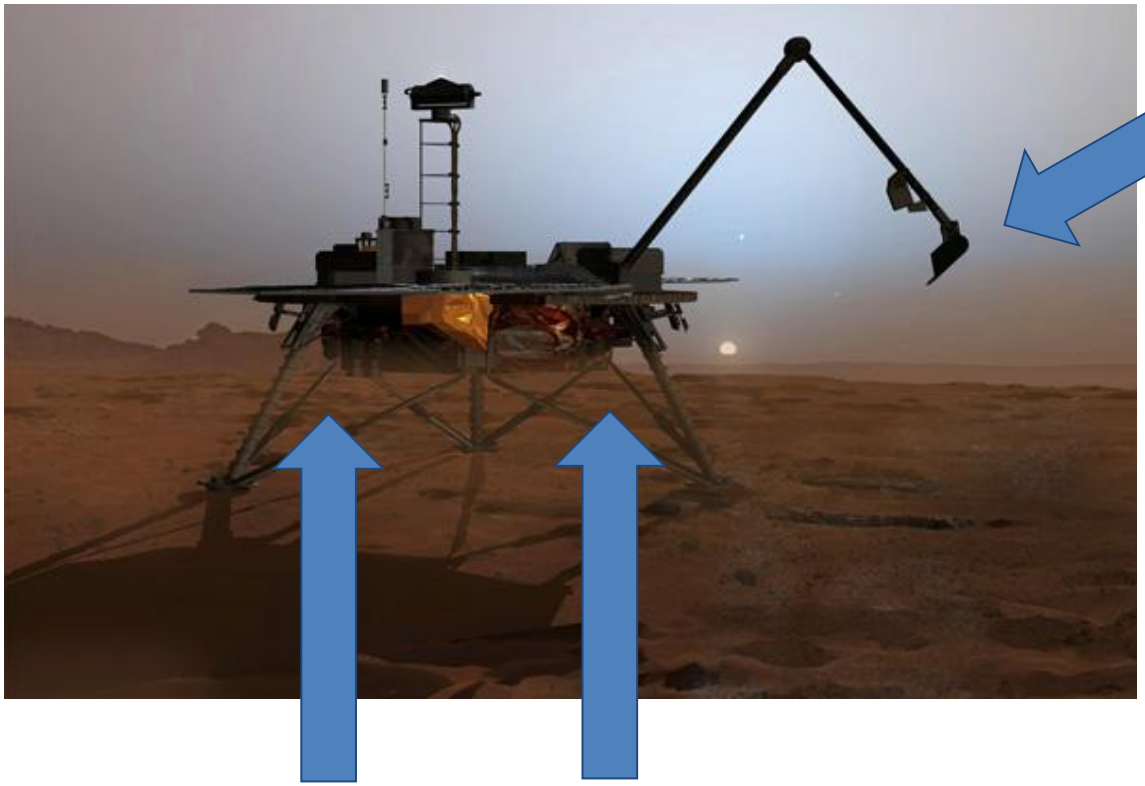
- **Proposal Ranking and Selection**
  - NASA Project/Mission Alignment
  - Value, Priority and Infusion Potentials
  - Champion/Advocate

Size of JPL SBIR Phase II SBIR Companies
1990 to 2003



SBIR Technology Infusion Example

Mars Phoenix Lander



Icy Soil Acquisition Device supplied by Honeybee Robotics, Inc.

Lithium ion batteries supplied by Yardney Technical Products, Inc.

SpaceDev (formerly Starsys) contributed to the design of the Microscopy Electrochemistry and Conductivity Analyzer (MECA)